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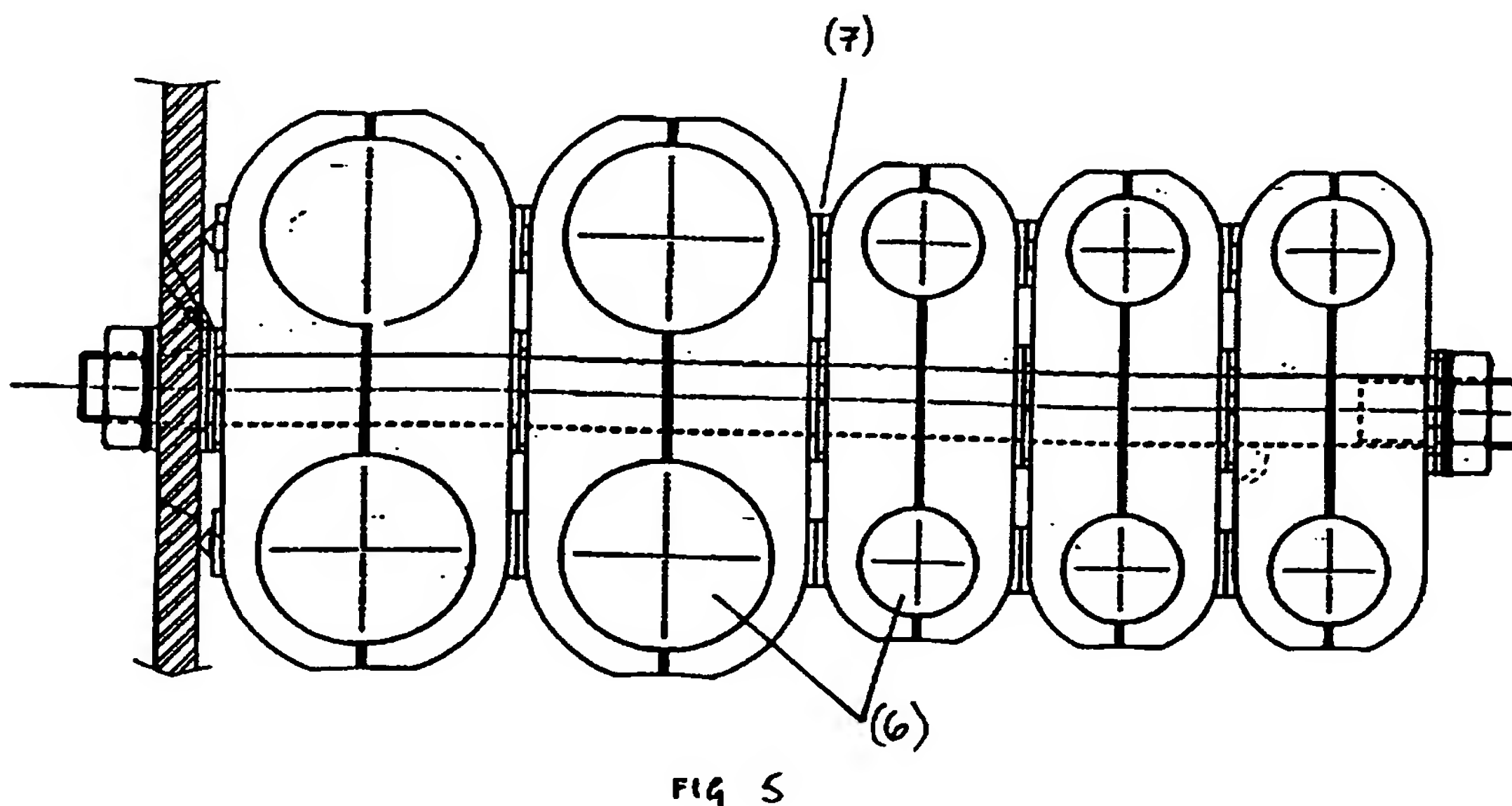
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US 5707169 A

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(54) Abstract Title
Interlocking clamp for undulating radio frequency cables

(57) A two-piece cable clamp 3, in particular for clamping radio frequency cables to signal towers. The two-piece clamp comprises two clamp halves joined at a centre line 1. The clamp has two apertures 2, each aperture being in one half of the clamp 3 on either side of the centre line 1 and these apertures can receive a cable. The two-piece clamp has pin and plug interlockers 5 for attaching the clamp to further clamps. In addition, the clamp 3 has grip regions comprising a plurality of fingers which grip and secure the cable in position in the apertures 2.



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The claims were filed later than the filing date but within the period prescribed by Rule 25(1) of the Patents Rules 1995.

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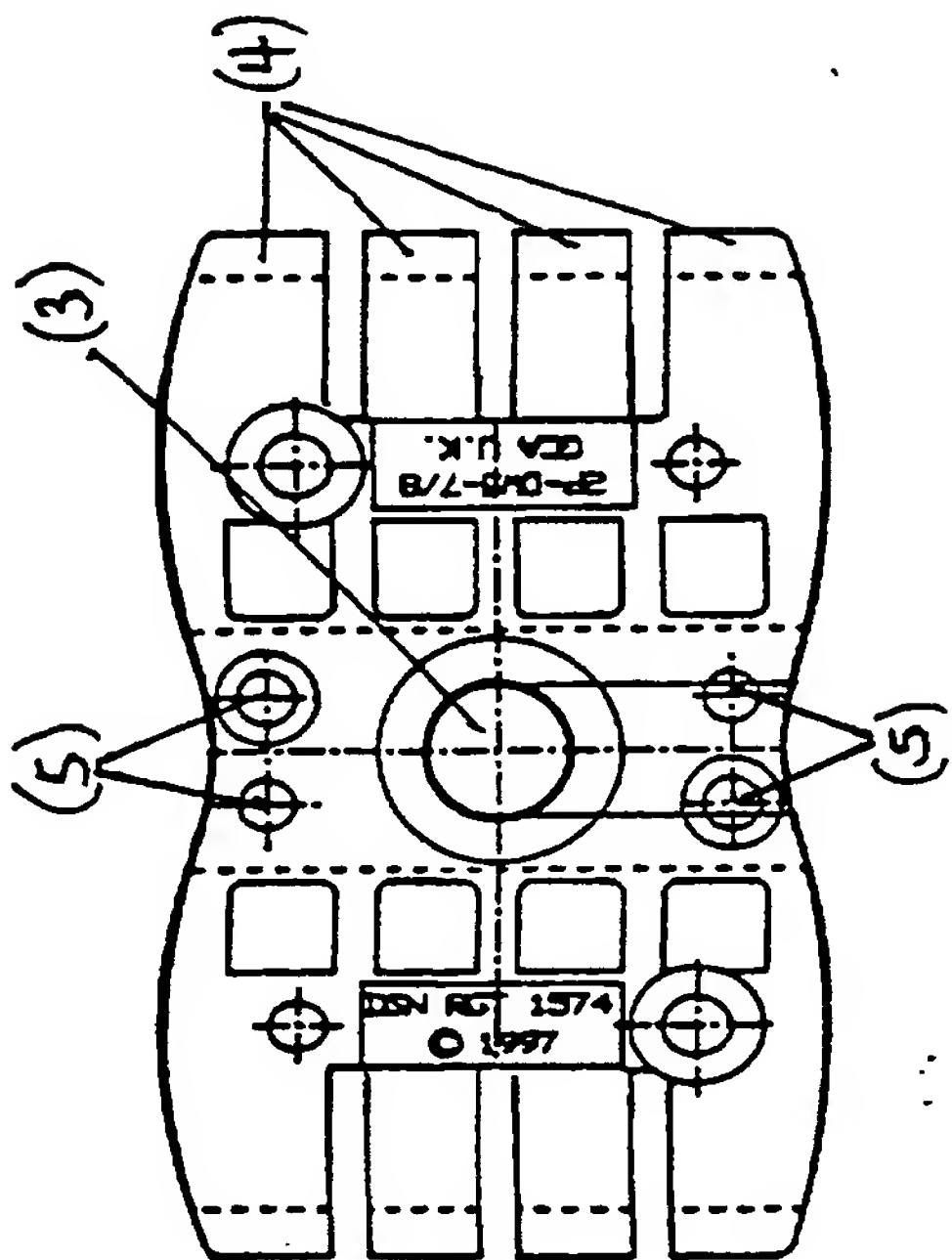


Fig 2

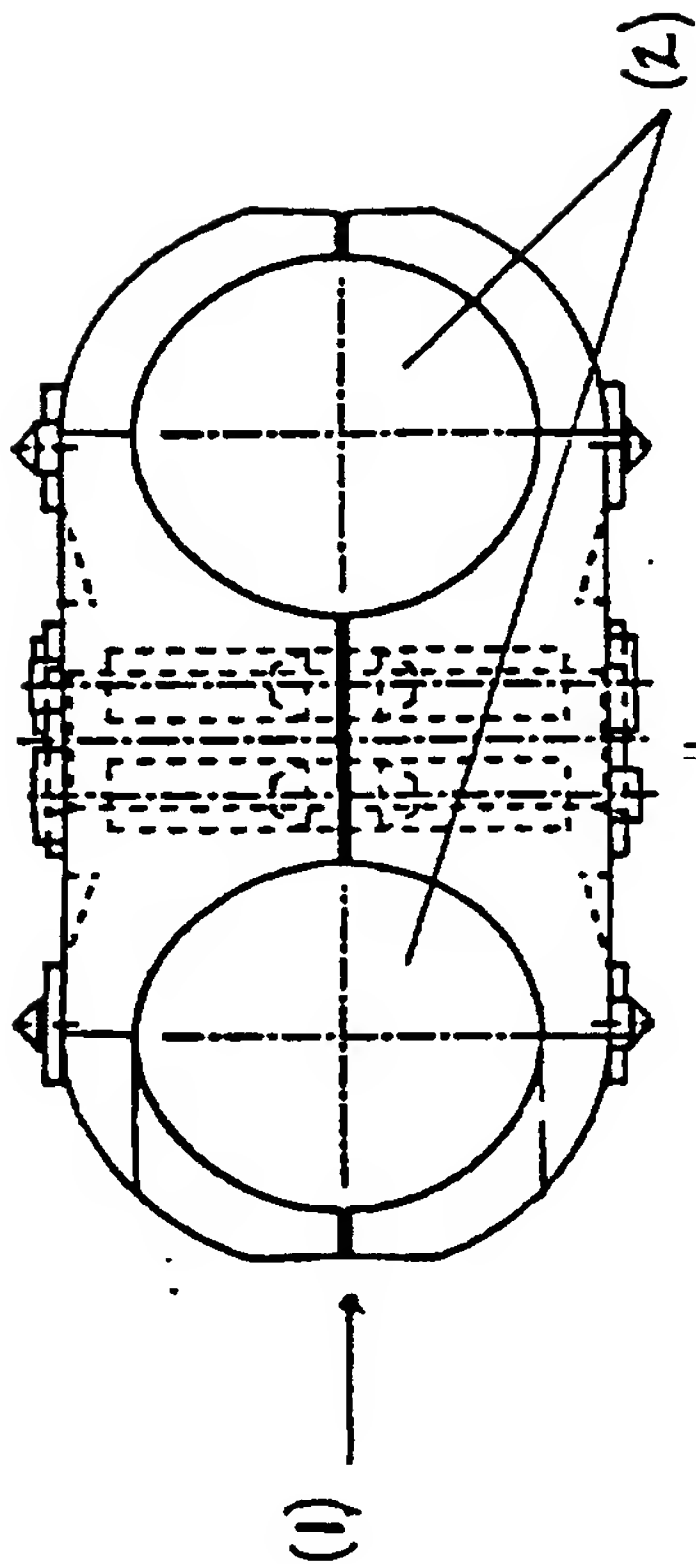


Fig 1

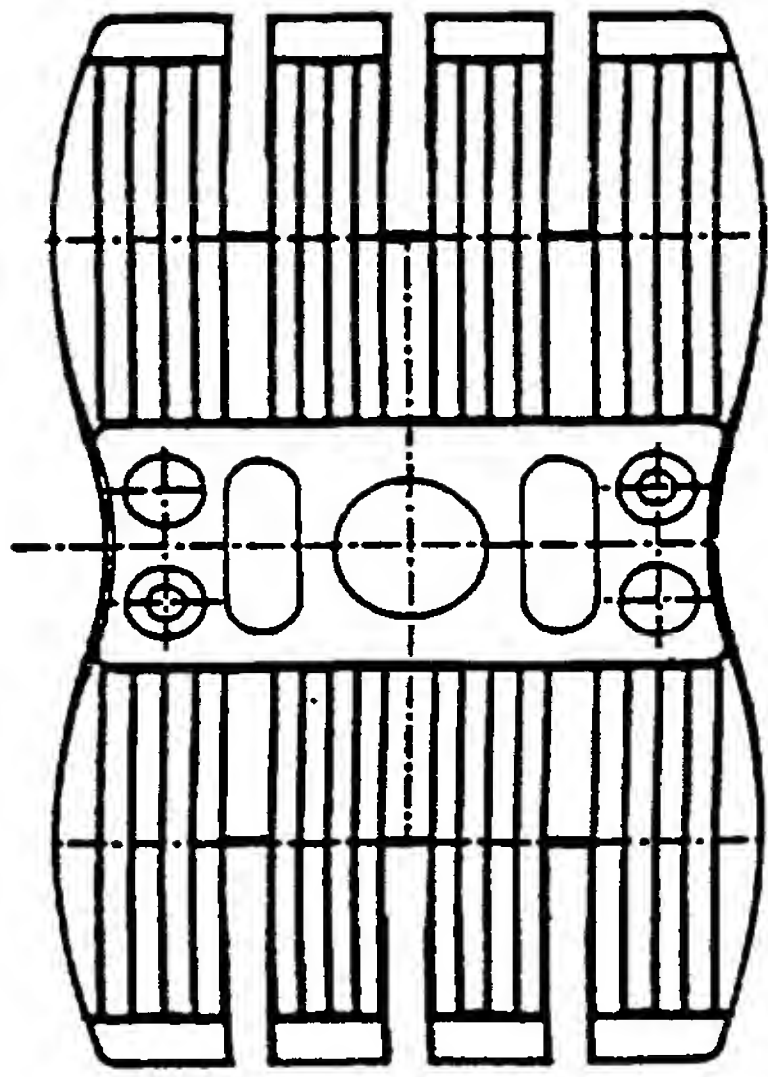


Fig 4

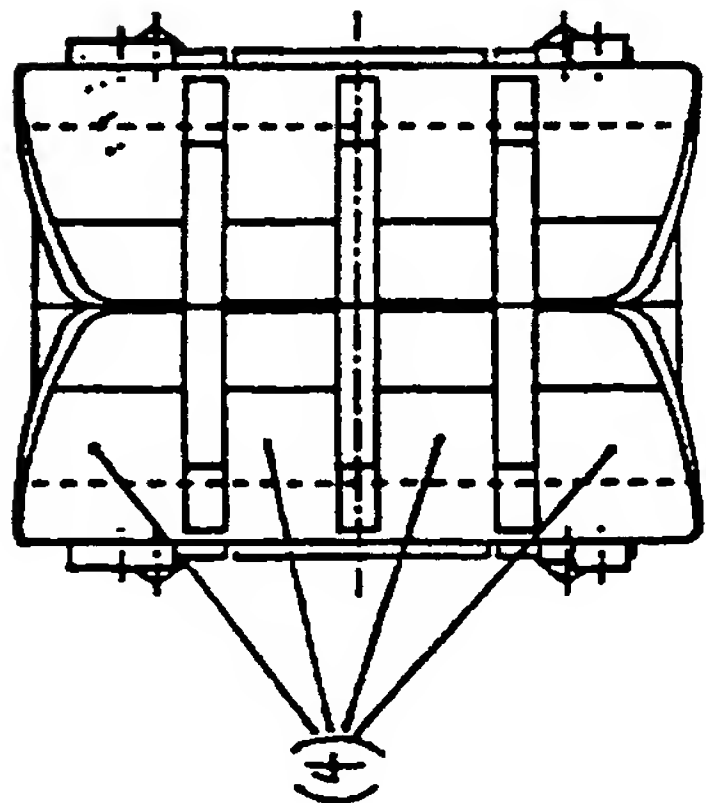


Fig 3

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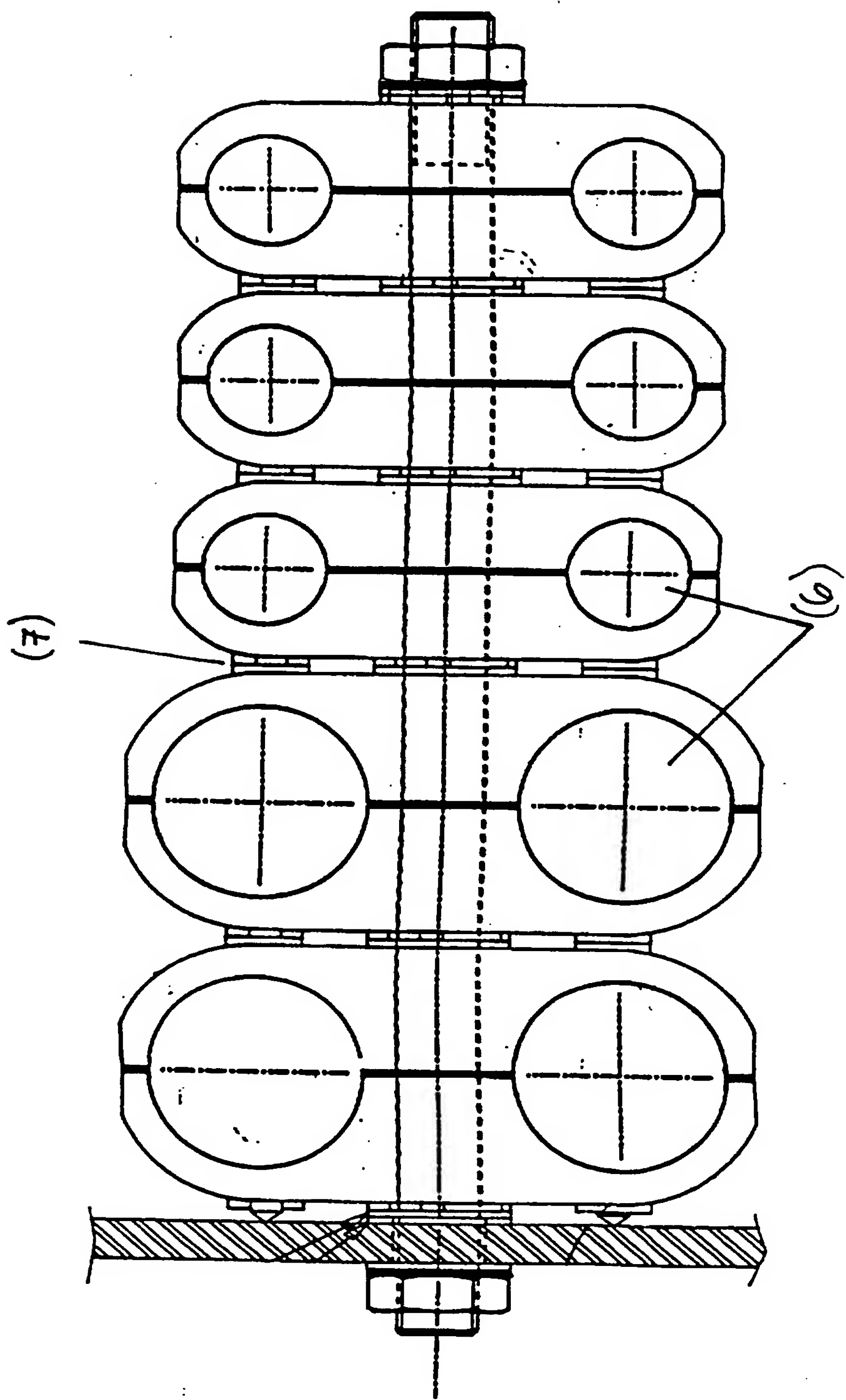


FIG 5

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INTERLOCKING CLAMP FOR UNDULATING RADIO FREQUENCY CABLES

This invention relates to a two-piece clamp design for undulating radio frequency cables.

The creation of the mobile telephone network has demanded the production of suitable clamps for attaching radio frequency cables to signal towers. The cables are distinguished by their undulating outer casing against which the clamp must fix. The cables are grouped in a series of double runs as they run up the tower and clamps will normally be required to sit against one another.

Existing clamp designs have failed to incorporate design features that acknowledge the undulating nature of the cable or benefits of clamps that will interlock when cables are stacked in a series of double cable runs.

The first object of this invention is to provide a two-piece double cable clamp that will interlock with other clamps of the same design when stacked back to back on the tower. The second object is to provide a clamp that recognises the difficulties associated with clamping against the undulating surfaces of fragile radio frequency cables.

Accordingly, this invention provides a clamp design including an interlocking capability when stacked with clamps of the same design and a grip design that allows for the undulations in radio frequency cables.

A specific embodiment of the invention will now be described with reference to the accompanying drawings.

Figure 1 shows the top profile of the clamping pieces

Figure 2 shows the back profile of each clamp piece.

Figure 3 illustrates the end profile of the clamp pieces in the clamping positions.

Figure 4 shows the inner face of each clamp piece.

Figure 5 shows the clamps for different sized cables stacked and interlocking on the tower studding.

As shown in Figure 1, the two clamp halves join at a centreline (1) and the cables occupy the two spaces (2).

Figure 2 shows the back of each clamp piece. This shows where the centre studding bolt passes through the clamp (3). The clamp ends gripping the cable (4) are made up of four separate fingers or grips that flex with the undulations in the cable preventing damage to the cable. Figure 3 shows the four finger grip design as it surrounds the cable.

As shown in Figure 2, the clamp backs feature injection moulded pin and plug interlockers (5) of sufficiently tight tolerances that secure and stick individual clamps back to back when located on studding during the process of installation.

Figure 5 shows that despite clamps of different sizes being stacked back to back (6) the interlocking feature is still operative (7).

Claims

1. A two-piece cable clamp comprising substantially two halves, each half having an aperture for receiving a cable, the two-piece cable clamp having interlocking means adapted to interengage with corresponding interlocking means on another of said two-piece cable clamps, for connection of said two-piece cable clamp with said other two-piece cable clamp.
2. A two-piece cable clamp according to claim 1, wherein the interlocking means comprises mutually engaging pin and plug interlockers, at least one each of said pin and plug interlockers being on respective mutually facing parts of one part of the two piece cable clamp.
3. A two-piece cable clamp according to claim 2, wherein the pin and plug interlockers are injection molded.
4. A two-piece cable clamp according to and preceding claim, further including grip regions on each of the two halves of the cable clamp for holding a cable in each of the apertures.
5. A two-piece cable clamp according claim 4, wherein the grip regions comprise flexible fingers having spaces there between for accommodating cables having varying surface dimensions in the apertures.
6. A two-piece cable clamp according to any preceding claim for clamping radio frequency cables to signal towers
7. A two-piece cable clamp as substantially described herein with reference to and as illustrated in the accompanying drawings.



INVESTOR IN PEOPLE

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Claims searched: 1-7

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Examiner: A J Rudge
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Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK CI (Ed.R): E2A(AGB, AAMA, AAN, AGA, AGMD, AGME, AGF)
Int CI (Ed.7): F16L-3/00;3/04;3/08;3/10;3/12;3/123; H02G-3/30;15/00
Other: Online databases: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	US 5,707,169 (AVL) - see abstract and drawings at lease	1 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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